

Attorney's Docket No.: 2001P12800US01

REMARKS

In reply to the Office Action of April 26, 2005, the applicant submits the following remarks. Claims 24, 27-28, 31, 35, 38, 41, 44-45, 48-49 are amended. Claims 50-51 are new. No new matter has been added. After entry of this amendment, claims 24, 27-32, 34-41 and 44-51 are pending. Claims 24, 31 and 41 are the only pending independent claims.

Rejections Under 35 U.S.C. § 112 ¶ 2

Claims 24, 27-32, 34-41 and 44-49 were rejected under 35 U.S.C. § 112 ¶ 2 as being indefinite. In particular, the rejection is to the use of the term "minimizes" or "minimizing". The term has been removed from the claims. The applicants believe this addresses the Examiner's concerns.

Independent Claims

The claims relate to light-emitting devices, such as organic light-emitting devices. Claim 24 is directed to a light-emitting device having a plurality of electrode layers, including an anode layer and a cathode layer. An electro-luminescent organic material is disposed between the anode and cathode layers. A poly-siloxane insulating structure defines apertures. The electro-luminescent organic material is within the apertures. The apertures correspond to a plurality of display pixels. Claim 31 is directed to a method of fabricating a light emitting device that includes forming a poly-siloxane bank structure having apertures. Organic layers are deposited from solution into the apertures. Claim 41 is directed to a light emitting device having a structure including poly-siloxane material. The structure has apertures and is configured to separate a plurality of light emitting elements.

As described by the applicants' specification, embodiments of the applicants' inventions provide both manufacturing and architectural benefits. Forming a structure with apertures from poly-siloxane can simplify manufacturing when compared to forming a structure from another material, such as a material that must be etched or subjected to a lift-off process to form apertures in the structure. Rather, the poly-siloxane is processed from a solution and is directly photo-patternable. In addition, the poly-siloxane is non-wetting to non-polar organic solutions

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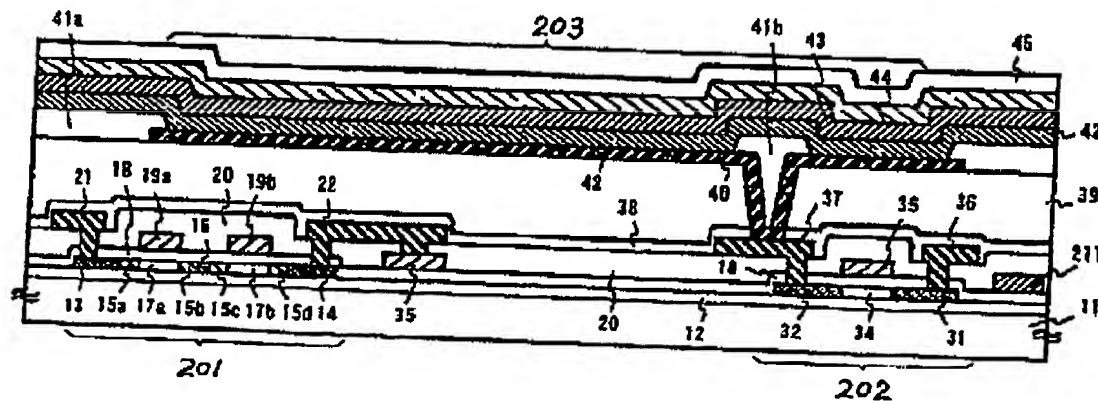
and water-based solutions. This causes the organic layers to be strictly confined to the apertures, thereby reducing electrical bridging between pixels. Further, the organic layers will be less likely to cling to the sides of the aperture, forming flatter layers and display pixels with improved performance.

Rejections Under 35 U.S.C. § 103(a)

Claims 24, 27-32, 34-41 and 44-49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 0732868 A1 ("Nagayama") in view of U.S. Publication No. 2001/0019133 ("Konuma"). The applicants respectfully disagree.

Nagayama teaches an insulating structure (7) of polyimide, but Nagayama fails to teach that the structure is formed of poly-siloxane. The rejection argues that Konuma teaches that polyimide resin and a resin containing a high molecular compound of siloxane are equivalent materials and thus it would have been obvious to one of ordinary skill in the art to have used a high molecular weight siloxane in the Nagayama device as the insulative material. However, Konuma uses siloxane for a different purpose than Nagayama uses polyimide.

Konuma describes an active matrix device, where a TFT 202 for controlling electrical current is connected to a pixel electrode 40 (paragraphs [0005] and [0011]). (Fig. 2 of Konuma is reproduced below for convenience.) A planarizing film 39 covers and planarizes the TFT 202 (paragraph [0013]). The planarizing film 39 is formed of polyimide resin or a resin containing a high molecular compound of siloxane. A hole 46 is formed in the insulating film so that pixel electrode 40 is able to contact the TFT 202 (paragraph [0017]).



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But the hole 46 is filled with a protective portion 41b of acrylic resin and not an electroluminescent organic layer (paragraph [0068]). An EL layer 42 is formed over the top of the planarizing film 39 and does not enter the hole 46 (paragraph [0043]).

Konuma does not describe the planarizing film 39 as having apertures, and the apertures having electro-luminescent organic material therein. Rather, Konuma fills the hole with the protective 41b portion. An EL layer 42 covers the electrode 40 and protective portions 41a, 41b and thus also covers the planarizing film 39 rather than being in an aperture of the film. No EL material is formed in the hole 46. For the foregoing reasons, the proposed combination of Nagayama and Konuma does not disclose the following limitations present in all of the pending independent claims (i.e., claims 24, 31, and 41): (1) poly-siloxane structure that includes apertures, and (2) organic electro-luminescent material in the apertures. Therefore, the Applicants request that these claims and all of the claims that depend from these claims be allowed.

Moreover, by arguing that one of ordinary skill in the art would find it obvious to form a structure with apertures having organic electro-luminescent material therein out of poly-siloxane merely because Konuma suggests that a planarizing layer can be formed of a high molecular weight siloxane material is improper use of hindsight. Not all materials are interchangeable in all situations. Konuma notes the key property of the material used to form the planarizing film is that it can perform sufficient planarization (paragraph [0013]). Konuma stresses the importance of the planarizing film's ability to planarize, so that the EL layer is as consistent in thickness as possible (paragraph [0014]).

Clearly the combination of Nagayama and Konuma entirely lack any suggestion of the applicants' inventions and the advantages of embodiments, which involve forming apertures in the poly-siloxane by direct photopatterning and forming organic layers in the apertures. The applicants therefore request that the obviousness rejection be withdrawn.

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CONCLUSION:

Applicants have made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicants respectfully request allowance of all pending claims.

If the Examiner feels that a telephone conference or an interview would advance prosecution of this Application in any manner, the undersigned attorney for Applicants stands ready to conduct such a conference at the convenience of the Examiner.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account No. 19-2179 of Siemens Corporation.

Date: July 26, 2005

Respectfully requested,

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